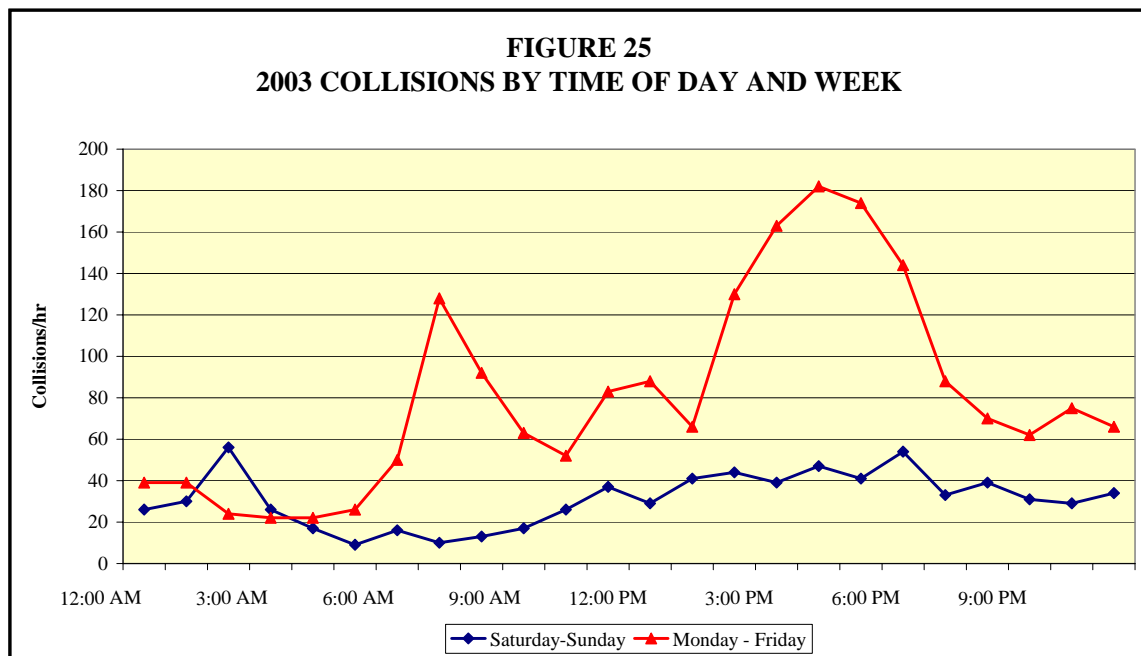


6.0 OTHER COLLISION INFORMATION

This section provides information on collisions by miscellaneous categories such as the time of day, road surface conditions, and circumstances contributing to the accident. As with the previous section, strategies for reducing the number of collisions are also discussed. A special studies subsection focusing on particular areas of interest is also included. The areas of focus for this subsection will vary from year to year.

6.1. Time and Day of Week

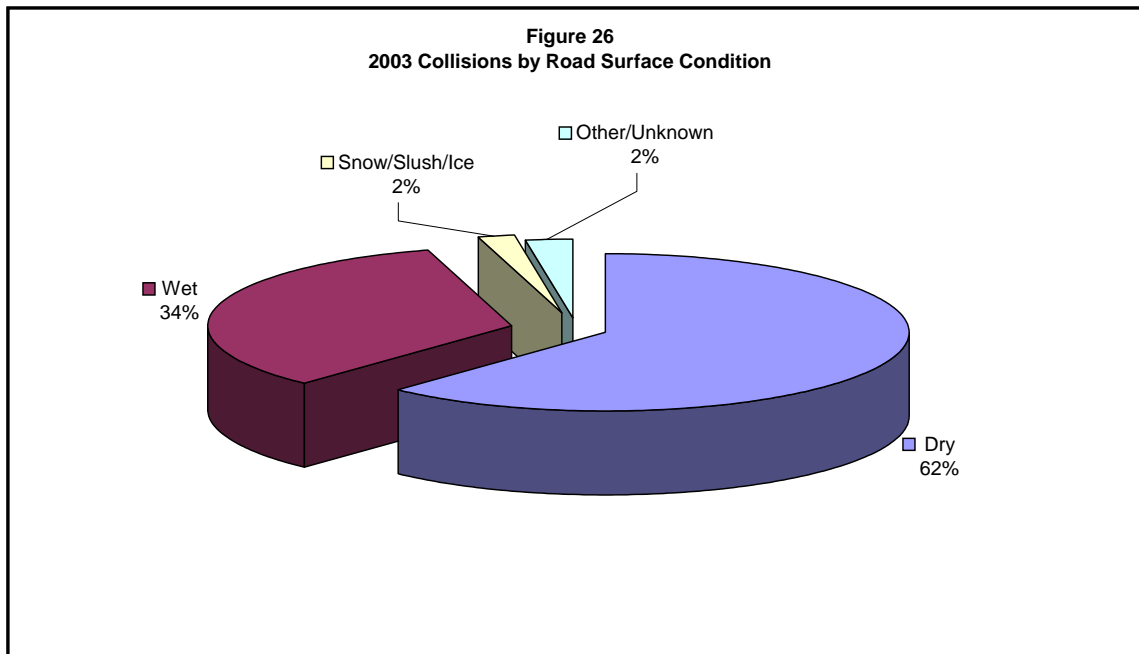
Figure 25 illustrates the relationship between collisions and the time of day, with a breakdown by weekdays and weekends. As expected, the majority of collisions occurred during the weekday AM and PM peak periods. In general, there appears to be a strong correlation between traffic volumes and collision frequency. A notable exception is during weekends between 2 and 4 AM, when the number of collisions appears to be higher in proportion to the number of vehicles on the road.



6.2.

Weather and Road Surface Conditions

Inclement weather can decrease visibility and create situations that distract drivers. In addition, wet, snowy, or icy pavement greatly increases stopping distance and decreases maneuverability. Figure 26 provides a breakdown of collisions according to road surface conditions. Nearly two-thirds of the collisions occurred when the roadway was dry. Comparison according to severity indicates that in 2003, the percentages of property damage only, injury, and fatal collisions were nearly identical for wet and dry road surface conditions.



6.3.

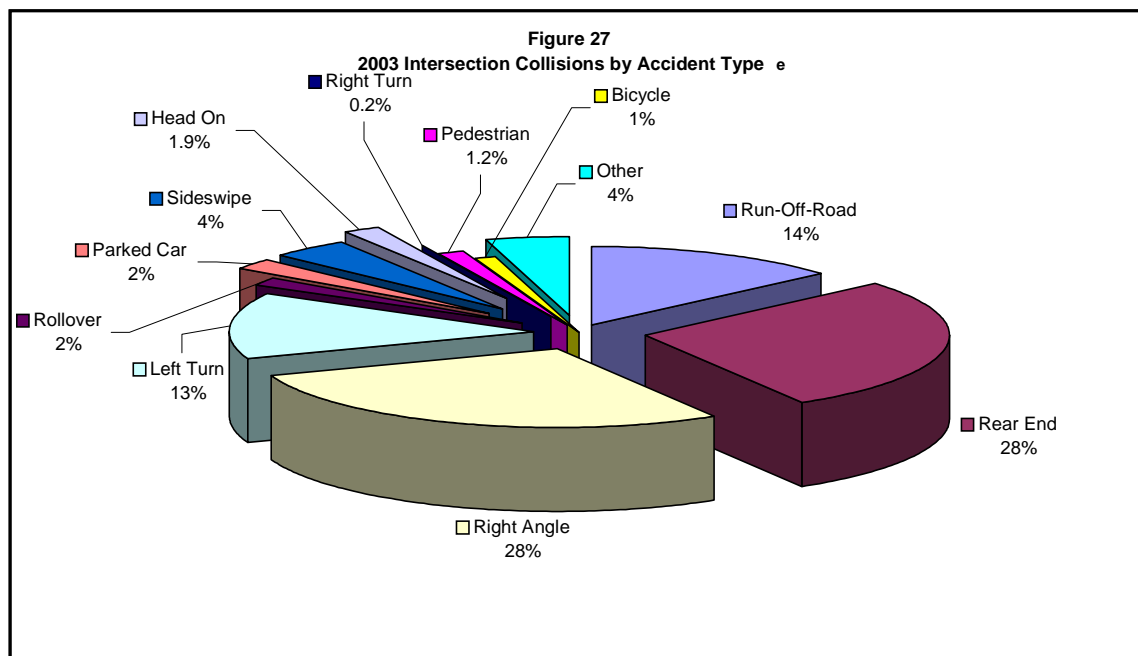
Collision Locations

6.3.1. Intersection and Non-intersection Collisions

Intersections constitute only a small portion of the roadway system, yet national statistics indicate that more than 50% of collisions in urban areas and over 30% of collisions in rural areas occur at intersections. This is expected, since intersections are the point on the roadway system where traffic movements most frequently conflict with one another.⁷

Within unincorporated King County, 44% percent of the collisions in 2003 occurred at intersections. King County roadways vary from rural to urban in character. As expected, the percentage lies between the national averages for rural and urban areas.

Figure 27 provides a breakdown of intersection collisions by accident type. As indicated, the highest collision types at intersections were rear-end (28%), right angle (28%), run-off-road (14%), and left turn (13%) collisions. These four accident types comprise over 80% of the collisions at intersections.



⁷ NCHRP Report 500, Volume 5 “A Guide for Addressing Unsignalized Intersection Collisions”

Figure 28 provides a breakdown of non-intersection collisions by accident type. Nearly one-third of the non-intersection collisions were run-off-road accidents, making this the most frequent accident type. Rear-end (16%) and parked car (14%) collisions were the second and third most common collision types.

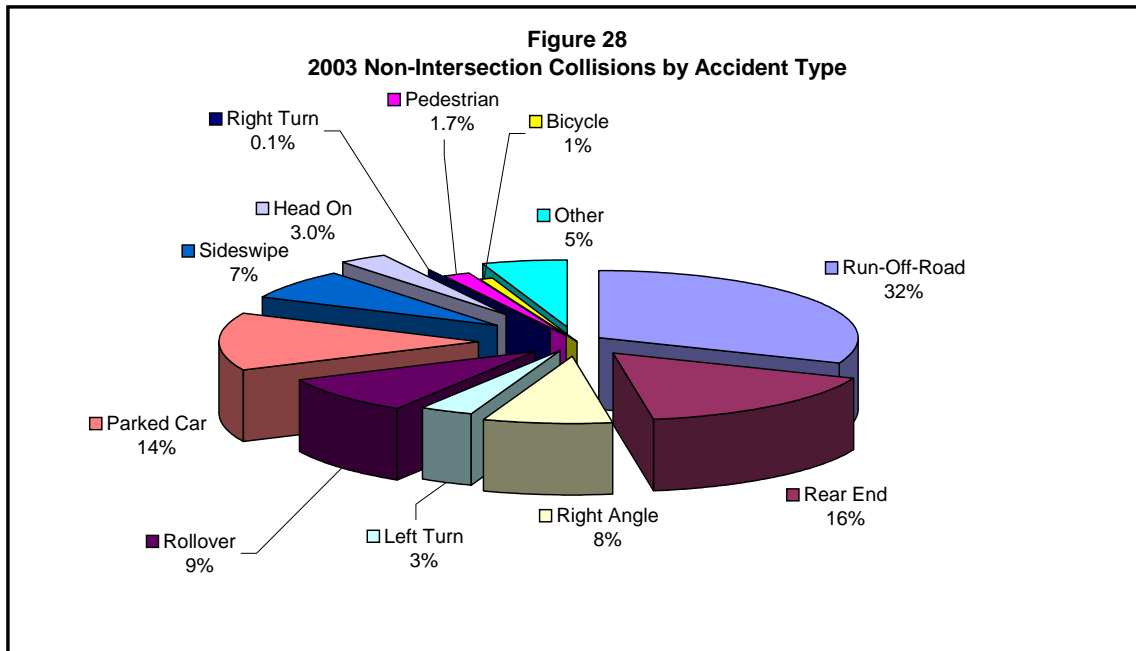
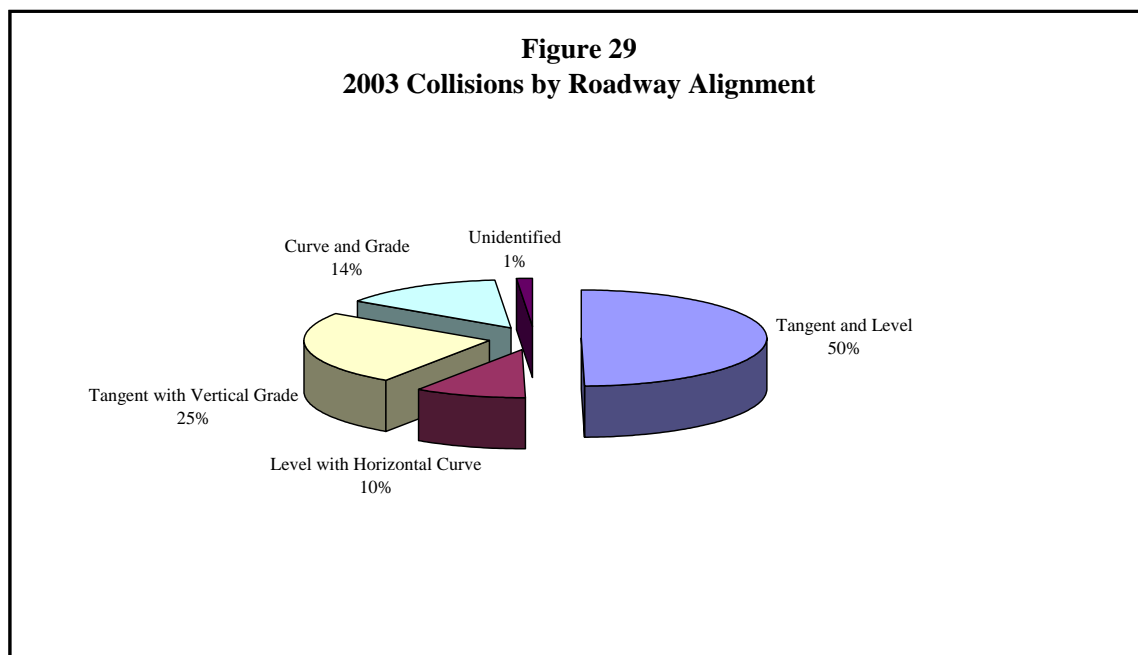


Table C8 (Appendix C) provides additional information on collisions according to location.

6.3.2. Roadway Alignment

Horizontal curves, steep grades, and vertical curves present additional challenges to drivers, and result in an increased risk of collisions. National statistics indicate that the accident rate on horizontal curves is nearly three times higher than on tangent⁸ sections. It should be noted that fewer collisions occur on curves than on tangent sections, but the accident rate is higher on curves since they comprise a small percentage of the total road miles.⁹

Figure 29 provides a breakdown of collisions according to roadway alignment. As indicated, 50% of the collisions occurred on level, tangent sections, 49% occurred on horizontal curves or grades, and 1% had no identified roadway alignment.



The accident rate would be the most meaningful way to compare collisions according to road alignment, since it accounts for roadway length. However, accident rates cannot be determined at the present time since mileage according to roadway alignment is not available for King County.

⁸ Tangent refers to a roadway with little or no horizontal curves.

⁹ NCHRP Report 500, Volume 7: "A Guide for Reducing Collisions on Horizontal Curves".

Table C8 in Appendix C provides a breakdown of collisions according to roadway alignment and collision type. Left turn, parked car, pedestrian and bicycle collisions were split fairly evenly according to alignment, with 40% to 60% of collisions occurring on tangent and level sections. Most right turn and right angle collisions took place on tangent and level sections, while the majority of the run-off-road, sideswipe, and head-on collisions occurred on horizontal curves or grades.

6.3.3. Arterials with Highest Accident Rates

Table 5 lists the ten arterial roadways with the highest accident rates. The accident rates for these roadways range from 15.67 to 10.04 acc/mvm.

TABLE 5 ARTERIAL ROADWAYS WITH HIGHEST ACCIDENT RATES (HIGHEST 10)						
Rank	Roadway	From	To	Classification	Length (miles)	Accident Rate (acc/mvm)
1	S 120th St	Des Moines Mem Dr S	Military Rd S	Collector	0.39	15.67
2	SE 128th St	15400 Block	156th Ave SE	Principle	0.31	12.63
3	S 118th St	Glendale Way S	Des Moines Mem Way S	Collector	0.16	12.29
4	S 321 St	Peasly Canyon Rd S	51st Ave S	Collector	0.46	12.16
5	Military Rd S	Des Moines Mem Dr S	S 128th St	Minor	1.06	10.82
6	34th Ave S	S 288th St	S 298th St	Collector	0.58	10.76
7	78th Ave S, S 112th St, 80th Ave S, Lkrdg Dr	Rainier Ave S	S Langston	Collector	1.67	10.75
8	148th Ave SE	SE May Valley Rd	SE 128th	Collector	1.94	10.20
9	17th Ave SW, 16th Ave SW, W/C Cutoff	Roxbury	116th	Principle	1.34	10.14
10	NE 80th St	W Snoq Valley Rd NE	Ames Lake Carn Rd NE	Minor	0.81	10.04
Source: 2003 Accident Rates for Arterial Roadways, Traffic Data Analysis Group. Accident rates based on 2001-2003 accident data.						

Improvement projects are planned or have been recently constructed on many of these roadways. These are reviewed in Section 7 of this report.

6.3.4. Geographic Distribution

Collision data is coded geographically using Traffic Engineering's route order system. Preliminary attempts have been made to translate the route order into a coordinate-based system so that accidents and other Traffic information can be included in King County's Geographical Information System (GIS) database. While completing this task will require significant resources, the ability to review collision locations with GIS would provide significant benefits. Completing the conversion is included as a recommendation in Section 8 of this report.

6.4.

Demographics

A breakdown of collisions by driver age and gender is provided in Table 6.

TABLE 6				
2003 COLLISIONS BY AGE AND GENDER				
Age	Male	Female	Total	Percentage
16-24	761	549	1310	35%
25-34	416	268	684	18%
35-44	416	274	690	18%
45-54	328	243	571	15%
55-64	164	112	276	7%
65-74	64	49	113	3%
75 and Older	51	35	86	2%
Total	2200	1530	3730	100%
<i>Note: Total exceeds number of collisions since some collisions involve multiple drivers.</i>				

Over one-third of the drivers involved in collisions were between 16 and 24 years old. Education and outreach for younger drivers may be an appropriate area for additional focus, and is included as a recommendation in Section 8.

Drivers age 65 and over were involved in 5% of the collisions. Older drivers are involved in fewer collisions, but they tend to drive less frequently and for shorter distances. Nationwide, the accident rate for older drivers is higher than for the driving population as a whole. Accidents involving elderly drivers also tend to be more severe. The number of older drivers in the United States is expected to double over the next 30 years, and this area is the subject of considerable discussion among roadway safety professionals.¹⁰

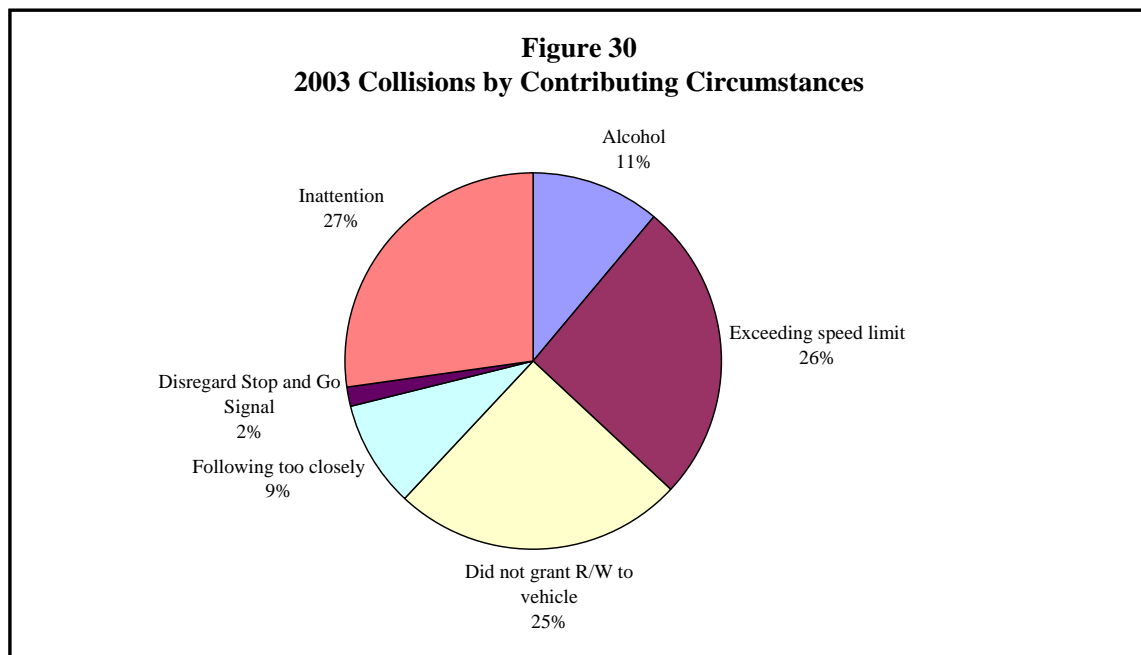
6.5.

¹⁰ NCHRP Report 500, Volume 9, "A Guide for Reducing Collisions Involving Older Drivers"

Contributing Circumstances

A collision is the result of a series of events referred to as contributing circumstances. The nature of the collision would be changed if any of these circumstances had not occurred, and in many cases the collision would not have taken place at all.

Figure 30 provides a breakdown of collisions by contributing circumstance. There are several contributing circumstances involved in every collision, and the circumstance provided is the one listed on the Officer's report.



6.6.

Special Studies

The special studies subsection provides an opportunity to focus on particular areas of interest each year. The relationship between pavement condition and bicycle and motorcycle accidents is addressed in this report.

6.6.1. Bicycle and Motorcycle Wet Pavement Collisions

Wet pavement increases the stopping distance for bicycles and motor vehicles. Rainy conditions also decrease maneuverability and visibility. These factors would be expected to increase the number of motorcycle and bicycle collisions during rainy weather. However, many motorcyclists and bicyclists avoid riding during rainy weather, which would decrease the number of collisions. Review of accident data from 1994 through 2003 indicates that approximately 15% of the bicycle and 8% of motorcycle collisions occurred under wet pavement conditions. This suggests that the number of collisions during inclement weather is influenced more by the decrease in motorcycle and bicycle use during inclement weather than by the increased risk to these road users.

6.6.2. Defective Equipment

Defective equipment can range from severe deficiencies such as non-working brakes to less serious items such as a broken turn signal. Defective equipment was found in vehicles in 123 of the collisions that occurred during 2003. It is likely that there are many additional collisions where defective equipment was present but not discovered.